

USSN: 10/074,635
Atty. Docket No.: 2002B005
Amdt. Dated May 3, 2004
Response to OA mailed February 17, 2004

REMARKS/ARGUMENTS

Claims 1-6 and 10-23 are pending in this Application. Original claims 1-6 and 10 are amended to clarify the recital that the claimed method relates to digitally printing on a polyolefin film layer that is substantially free of voids. New claims 11-12 correspond to original claims 7-8 amended for clarification. Claims 13-23 are new and recite specific film structures incorporating a polyolefin layer that is substantially free of voids that is printed with a digital image. Support for the claim amendments, and new claims, is found generally throughout the Specification, especially the Examples and the disclosure regarding digital printing.

Interview

Applicants appreciate the courtesies extended by Examiner Mayes to their Attorney, Dean Simmons, in the telephonic interview on April 22, 2004. In that Interview, the Office Action rejections and cited references were discussed. In particular, the teachings of preparation of the web material in the Jennel reference were discussed. Mr. Simmons agreed that the claim amendments found in this Response would be submitted along with arguments highlighting distinctions over the cited art. Examiner Mayes indicated that he would consider the amendments and arguments when filed.

Typographical Error

The Specification is amended to correct a typographical error occurring on page 2.

Section 103 Rejections

On pages 2-8 of the Office Action, all original claims 1-10 were rejected under 35 U.S.C. Section 103 over multiple combinations of various references. In particular, various references disclosing numerous film structures were combined with U.S. Patent 6,102,536 to Jennel.

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The various non-Jennel references are cited as disclosing oriented polyolefin film structures. The Office Action acknowledges that none of these references discloses passing oriented films to a digital printer for printing indicia on the films. The Jennel reference is cited as disclosing "a method of printing a web of packaging material, such as a web of flexible plastic material". Therefore, the Office Action concludes it would be obvious to print the polyolefin film structures disclosed in the primary references with a digital printer, as taught by Jennel.

Original claims 1-6 and 10 are amended to clarify that the digital printing takes place by the application of radiation curable ink **onto the surface** of a polyolefin layer of the recited film structures. Further, the claims recite that the polyolefin layer to which the ink is applied is substantially free of voids. This recital is also found in new claims 11-22.

None of the references, either alone or in combination with the other references, teach or suggest the application of an ink image onto a polyolefin layer surface, with a digital printer. One of the reasons for this deficiency is that the surfaces of polyolefin film layers are not receptive to conventional inks. The application of conventional inks requires a surface that which will absorb the water or other carrier, such as oil, of an ink used to print the image on the film.

This is precisely what is disclosed in the Jennel patent. Jennel discloses that the flexible plastic material web may be a polyethylene or a polyethylene terephthalate. *See*, column 2, lines 59-64. Jennel teaches that to print onto polyethylene or polyethylene terephthalate, it is necessary to place a layer of silicon oxide onto the surface of the film. *See*, column 2, lines 62-63. It is well known that the use of silicon oxide layers are used to provide porous ink receiving layers for inkjet printing. *See*, for example, U.S. Patent 6,709,097 to Nakahara, et al..

Alternatively, Jennel discloses that the plastic web may have a fiberboard layer laminated on its surface and digital printing may be placed directly onto the fiberboard layer. *See*, column 2, lines 62-63.

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Therefore, Jennel teaches that an additional ink receptive layer (a non-polyolefin layer) must be added to the film structure to render it printable with an ink.

Although Jennel refers to the use of "UV-reactive inks" as being suited for printing the plastic web, there is no recognition that such inks may be used to print directly onto the surface of a polyolefin web, without a layer of silicon oxide or fiberboard layer added to provide a printable surface. In short, Jennel fails to provide a teaching or suggestion to print directly onto the surface of a polyolefin film layer as recited in the claims. The other references applied simply disclose various film structures and also provide no teaching or suggestion of using radiation curable inks to achieve digital printing onto the surface of polyolefin film layers.

For this reason alone, none of the pending claims are rendered obvious by the cited references.

Additionally, to the extent printing on a polyolefin layer coated with a silicon oxide is considered to be printing onto a polyolefin layer, the pending claims are distinguishable from such a process. The claims are clarified by reciting that the printed polyolefin layer is substantially free of voids. If a silicon oxide coating is considered to be part of the polyolefin layer, then the voids in the silicon oxide coating must also be considered part of the polyolefin layer. Therefore, the coated layer of Jennel must be considered a voided layer. For this additional reason, the claims are distinguishable.

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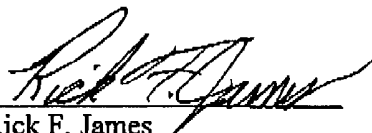
Conclusion

Consistent with the foregoing, claims 1-6 and 10-23 are believed to be in condition for allowance. Consideration of these claims with an early Notice of Allowance is respectfully requested.

It is believed that this submission is fully responsive to the outstanding Office Action. However, should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number listed below so that all matters may be expeditiously resolved.

Respectfully submitted,

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